Carbon Monoxide Maintenance Provisions for Ogden

Section IX, Part C.8

Adopted by the Air Quality Board
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IX.C.8.a Background

The Environmental Protection Agency (EPA) approved a redesignation request and maintenance plan for Ogden on March 9, 2001 (66 FR 14078), effective May 8, 2001. The action, which was adopted by the Utah Air Quality Board on September 4, 1996, established an attainment year of 1992, demonstrated maintenance through 2007, provided for the continuation of the Weber County vehicle emission inspection and maintenance program, established a carbon monoxide mobile source emissions budget for a number of years for mobile sources (to be used in transportation conformity determinations), and established a contingency plan in the event a violation of the carbon monoxide standards or an exceedance of the 1992 planning cap was measured.

This revised maintenance plan provides for the continuation of the County's inspection and maintenance program as defined in Weber-Morgan District Health Department Ordinance 2003-28, revises the emission inventories and maintenance demonstration, revises the on-road mobile source carbon monoxide attainment emissions inventory for 1992, adds mobile source emissions budgets for 2005 and 2021 and repeals budgets for other years, and revises the contingency plan.

IX.C.8.b Emission Inventories and Maintenance Demonstration

The emission inventories for the 1992 attainment year and the 2021 maintenance year are presented below in Tables 1 and 2. Each inventory accounts for the emission control programs effective during that period, and the following controls will continue to be implemented to ensure maintenance of the carbon monoxide standards through the year 2021**.**

- Federal Motor Vehicle Control Program.

- Stationary Sources. The Ogden attainment/maintenance area is subject to the Prevention of Significant Deterioration permitting requirements of R307-405, and the requirements of R307-401 and R307-403. R307-401:405 are already included in the State Implementation Plan. The maintenance plan makes no changes to these regulations.

- Automobile Inspection and Maintenance Program. SIP Section X, Vehicle Inspection and Maintenance Program, Part E, Weber County, adopted November 3, 2004, including Weber-Morgan District Health Department ordinance 2003-28, revised June 10, 2003. The program is set forth in SIP Section X.E., Weber County I/M Program, last approved by EPA on July 17, 1997 (see 62 FR 38213).

Both inventories represent emissions on a typical winter weekday during the peak carbon monoxide season (November through January for the respective year). These inventories use EPA-approved emissions modeling methods and the latest transportation data from the Wasatch Front Regional Council's (WFRC) 2004 - 2030 transportation plan found by the Federal Highways Administration on January 20, 2004, to conform to the State Implementation Plan. Demographic data was obtained from the Governor's Office of Planning and Budget. The inventories were developed by the Division of Air Quality (DAQ) in coordination with the WFRC. Detailed information on model assumptions and parameters for each source category are found in the Technical Support Document at Tab 2.

The 1992 inventory included in the original 1996 Maintenance Plan indicated total winter weekday emissions of 70.82 tons, with 63.93 tons (90% of the total) coming from on-road mobile sources. Table 1 below differs from that inventory because methodologies for collecting and estimating inventory data have changed since 1996. Therefore, the 1992 inventory has been re-calculated using current methods so that it can be compared with the projections for future years. Methodology changes are explained in the Technical Support Document at Tab 2. The principal factor is the difference between mobile source emission projections using the currently-approved MOBILE6.2 version of the model, compared to the now outdated MOBILE 5 version used in the 1996 submittal.

The newly-calculated 1992 inventory in Table 1 below indicates that total winter weekday emissions were 106.49 tons, with 93.50 tons (88%) coming from on-road mobile sources. Though the inventory appears to be considerably higher than the original inventory, it reflects the differences in the new MOBILE6.2 model; no additional emissions are included, and the monitoring data in Table 4 below indicate that ambient concentrations of carbon monoxide have declined since 1992. This Plan constitutes a maintenance demonstration for carbon monoxide in Ogden through 2021.

Tables 1 and 2 show the comparable inventories for 1992 and 2021. Figure 1 shows the proportion of carbon monoxide coming from each kind of source.

Table 1. 1992 Attainment Year Carbon Monoxide Emission Inventory for the Ogden Attainment/Maintenance Area

SOURCE CATEGORY			CO Emissions (in Tons per Winter Week Day)	
Area Sources				
	Agricultural Burning		n/d	
	Aircraft Maintenance		0.01	
	Coal Combustion - commercial		0.35	
	Coal Combustion-industrial		0.47	
	Coal Combustion-residential		0.02	
	Detonation		n/d	
	FirefighterTraining		n/d	
	Forest Fires		n/d	
	Natural Gas Combustion-commercial		0.19	
	Natural Gas Combustion-industrial		n/d	
	Natural Gas Combustion-residential		0.30	
	Oil Combustion-commercial		0.00	
	Oil Combustion-residential		0.00	
	Open Burning		n/d	
	Orchard Heaters		n/d	
	Structural Fires		0.02	
	Vehicle Fires		0.00	
	Wood Combustion		4.92	
		Total Area Sources		6.28
Mobile Sources				
	On-road Mobile	*Total On-road Mobile*		93.50
	Off-road Mobile			
		Aircraft	1.03	
		Railroad	0.05	
		Misc Non-road Equipment	5.63	
		Total Non-road Mobile		6.71
Point Sources*				0.00
		Total Ogden CO Emissions		**106.49**

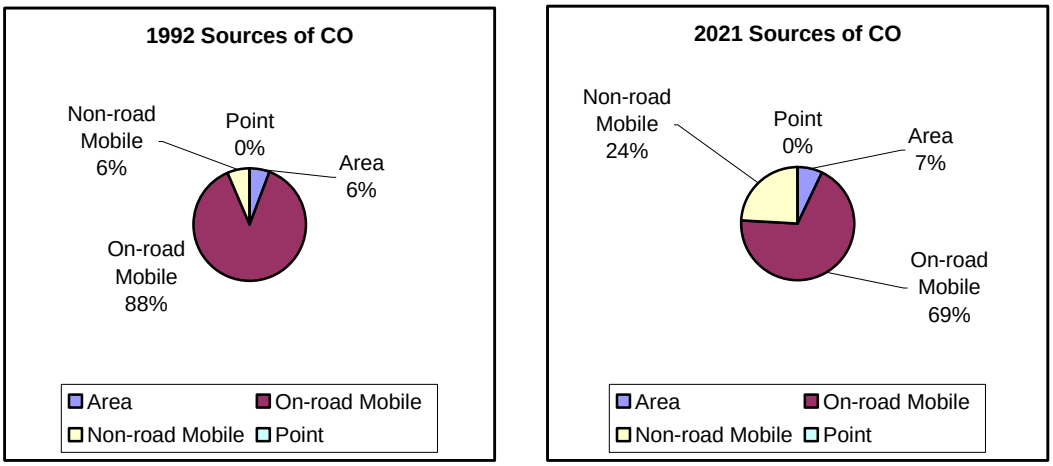
NOTE: Numbers may vary slightly from report due to rounding
Numbers may not add due to rounding.
n/d = negative declaration
* There were no major CO point sources in Ogden in 1992;
point source emissions are included in the Area Source inventory.

Table 2. 2021 Attainment Year Carbon Monoxide Emission Inventory for the Ogden Attainment/Maintenance Area

SOURCE CATEGORY			**CO Emissions** (in Tons per Winter Week Day)	
Area Sources				
	Agricultural Burning		n/d	
	Aircraft Maintenance		0.02	
	Coal Combustion - commercial		0.32	
	Coal Combustion-industrial		0.43	
	Coal Combustion-residential		0.02	
	Detonation		n/d	
	FirefighterTraining		n/d	
	Forest Fires		n/d	
	Natural Gas Combustion-commercial		0.36	
	Natural Gas Combustion-industrial		n/d	
	Natural Gas Combustion-residential		0.35	
	Oil Combustion-commercial		0.00	
	Oil Combustion-residential		0.00	
	Open Burning		n/d	
	Orchard Heaters		n/d	
	Structural Fires		0.03	
	Vehicle Fires		0.01	
	Wood Combustion		1.57	
			Total Area Sources	3.09
Mobile Sources				
	On-road Mobile		*Total On-road Mobile*	29.47
	Off-road Mobile			
		Aircraft	1.73	
		Railroad	0.03	
		Misc Non-road Equipment	8.62	
			Total Non-road Mobile	10.38
Point Sources*				0.00
			Total Ogden CO Emissions	**42.94**

NOTE: Numbers may vary slightly from report due to rounding
Numbers may not add due to rounding.
n/d = negative declaration
* There were no major CO point sources in Ogden in 1992;
point source emissions are included in the Area Source inventory.

Figure 1. 1992 and 2021 CO Emission Sources in Ogden



DAQ also performed an analysis that shows the projected levels of emissions for the years 2004, 2005, 2008, 2011, 2014, 2017, 2020 and 2021 are below the 1992 attainment inventory, as shown in Table 3. The details are found in the Technical Support Document at Tab 2. These years were selected to demonstrate that Ogden will not experience an unexpected increase in emissions prior to the year 2021. Included in the analysis is a change in the Weber County vehicle inspection and maintenance program that was adopted by the Utah Legislature that allows vehicles six years old and newer to be inspected every other year instead of annually. As the projections demonstrate, this change in the I/M program does not endanger attainment of the standard.

Table 3. Emissions Projections for Interim Years
(Tons per Winter Week Day)

Year	Area	Mobile	Non-road	Point*	TOTAL
1992	6.28	93.50	6.71	0.00	106.49
2004	3.15	42.58	7.81	0.00	53.54
2005	3.14	44.54	7.99	0.00	55.67
2008	3.14	34.14	8.40	0.00	45.68
2011	3.16	32.07	8.82	0.00	44.05
2014	3.17	30.48	9.26	0.00	42.91
2017	3.15	29.72	9.72	0.00	42.59
2020	3.10	29.28	10.21	0.00	42.59
2021	3.09	29.47	10.38	0.00	42.94

NOTE: Numbers may vary slightly from report due to rounding
Numbers may not add due to rounding.
n/d = negative declaration
* There were no major CO point sources in Ogden in 1992;
point source emissions are included in Area Source inventory.

As Tables 1, 2 and 3 indicate, projections for 2021 CO emissions are below 1992 attainment year levels - there are 68.35 fewer tons of CO emitted each day in 2021 than in 1992 (106.49 tpd - 42.94 tpd = 63.55 tpd). Thus, maintenance of the CO NAAQS in Ogden is demonstrated through 2021. Figure 1 illustrates how CO emissions sources change between 1992 and 2021.

IX.C.8.c Monitored Data

Ogden has never measured an exceedance of the National Ambient Air Quality Standard of 35 ppm (one-hour average). A violation of the eight-hour standard occurs when the 2nd highest monitored value at a monitoring site exceeds 9 ppm. Table 4 below displays the eight-hour monitored data for stations in Ogden from the attainment year of 1992 through 2003. No violation of the eight-hour standard of 9 ppm has been measured during this period.

Table 4. 8-Hour Monitoring Data at the Ogden Station, 1992 - 2003
(ppm)

Year	Maximum	2nd High
1992	8.8	8.6
1993*	8.6	7.1
1994*	7.0	6.4
1995	7.9	6.7
1996	7.5	7.0
1997	7.6	6.4
1998	7.8	7.5
1999	6.4	6.2
2000	7.2	6.1
2001	6.2	4.9
2002	4.5	4.4
2003	4.1	4.1

* Partial years of data. The original monitoring site at 2955 South Washington Boulevard ended operations on April 6, 1993, because the building was torn down. The new location at 2540 South Washington Boulevard was approved by EPA and commenced operation on April 19, 1994.

IX.C.8.d Mobile Source Carbon Monoxide Emissions Budgets for Transportation Conformity

The transportation conformity provisions of section 176(c)(2)(A) of the CAA require regional transportation plans and programs to show that "…emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable implementation plan…"

The federal conformity rule (40 CFR Part 93, Subpart A) and its preamble (58 FR 62193) indicate that motor vehicle emission budgets must be established for the last year of the maintenance plan, and may be established for any years deemed appropriate. If the maintenance plan does not establish motor vehicle emissions budgets for any years other than the last year of the maintenance plan, the conformity regulation requires that a "demonstration of consistency with the motor vehicle emissions budgets must be accompanied by a qualitative finding that there are not factors which would cause or contribute to a new violation or exacerbate an existing violation in the years before the last year of the maintenance plan." The normal interagency consultation

process required by the regulation establishes what must be considered in order to make such a finding.

For transportation plan analysis years following the last year of the maintenance plan (in this case 2021), a conformity determination must show that emissions are less than or equal to the maintenance plan's motor vehicle emissions budget for the last year of the implementation plan. EPA=s conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes.

Ogden Mobile Source CO Emissions Budgets

This plan retracts the emissions budgets for 2005 - 2017 that were included in the original Ogden Carbon Monoxide Maintenance Plan submitted to EPA in 1996. These numbers were based on the emissions projections of an earlier version of the MOBILE model, and are no longer appropriate. In this maintenance plan, the State is establishing transportation conformity motor vehicle emission budgets (MVEB) for 2005 and 2021, based on the current MOBILE6.2 model.

CO Emissions Budget

As presented in Table 3, total 1992 emissions were 106.49 tons per day. In that year, the second-high monitored value was 8.6 ppm, as shown in Table 4.

As presented in Table 3, projected emissions for 2005 are 55.67. The difference between the 1992 total of 106.49 tpd and the projection of 55.67 tpd for 2005, the documentable portion of the safety margin, is 50.82 tpd. WFRC projects motor vehicle emissions of 44.54 tons per day for 2005; the Air Quality Board is allocating an additional 30.82 tpd from the safety margin to the Motor Vehicle Emissions Budget (MVEB). The remaining 20 tpd from the safety margin is retained to allow for potential variations in emissions from non-road and area sources. Therefore, the MVEB for 2005 is 75.36 tons per day.

Projected emissions for 2021, shown in Table 3, total 42.94. The difference between the 1992 total of 106.49 and the projection of 42.94 tpd for 2021, the documentable portion of the safety margin, is 63.55 tpd. WFRC projects motor vehicle emissions of 29.47 tons per day for 2021; the Air Quality Board is allocating an additional 43.55 tpd from the safety margin to the MVEB. The remaining 20 tpd from the safety margin is retained to allow for potential variations in emissions from non-road and area sources. Therefore the MVEB for 2021 is 73.02 tons per day.

These new MVEBs will take effect for future transportation conformity determinations upon approval of this Maintenance Plan or, for 2021, upon a finding of adequacy by EPA, whichever comes first.

Pursuant to 40 CFR 93.102(b)(3), no further conformity determinations for the Ogden CO maintenance area will be necessary after May 8, 2021.

IX.C.8.e Monitoring Network/Verification of Continued Attainment

Utah will continue to operate an appropriate air quality monitoring network of NAMS and SLAMS monitors in accordance with 40 CFR Part 58 to verify the continued attainment of the CO NAAQS and will gain EPA approval before making any changes to the Ogden monitoring network. If measured mobile source parameters (e.g., vehicle miles traveled, congestion, fleet mix, etc.) change significantly over time, DAQ will perform a saturation monitoring study to determine whether additional and/or re-sited monitors are necessary.

Annual review of the NAMS/SLAMS air quality surveillance system will be conducted in accordance with 40 CFR 58.20(d) to determine whether the system continues to meet the monitoring objectives presented in Appendix D of 40 CFR Part 58.

IX.C.8.f Contingency Provisions

Section 175A(d) of the Clean Air Act requires that the maintenance plan contain contingency provisions to ensure that the State will promptly correct any violation of the CO NAAQS that may occur in the Ogden attainment/maintenance area. Attainment areas are not required to have pre-selected contingency measures and this plan removes the regulatory requirement for Alternative Commuting Options and improvements in the Basic Vehicle Inspection and Maintenance Program as the primary contingency measures and an oxygenated gasoline program as a secondary contingency measure.

The contingency plan should ensure that the contingency measures are adopted expeditiously once the need is triggered. The primary elements of the contingency plan involve the tracking and triggering mechanisms to determine when contingency measures are needed and a process for implementing appropriate control measures.

(1) Tracking

The tracking plan for Ogden will consist of 1) CO monitoring by DAQ and 2) analysis of CO concentrations, VMT and population growth. In accordance with 40 CFR Part 58, DAQ will continue to operate and maintain an Ogden carbon monoxide monitoring site. Since revisions to the region's transportation improvement programs are prepared every two years, and must go through the transportation conformity finding, this process will be used to periodically review progress toward meeting the mobile source emissions projections in this maintenance plan.

(2) Trigger and Response

Triggering of the contingency plan does not automatically require a revision of the SIP nor is Ogden necessarily redesignated once again to nonattainment. Instead, DAQ will normally have an appropriate time-frame to correct the violation with implementation of one or more adopted contingency measures. In the event that violations continue to occur, additional contingency measures will be adopted until the violations are corrected.

Upon notification of a CO NAAQS exceedance, DAQ and WFRC will develop appropriate contingency measure(s) intended to correct a violation of the CO NAAQS standard. Information about historical exceedances of the standard, the meteorological conditions related to the recent exceedance(s), and the most recent estimates of growth and emissions will be reviewed.

Notification to the Ogden city government and to EPA, of any exceedance will generally occur within 30 days, but no more than 45 days following the exceedance. This process will be completed within six months of the exceedance notification. A violation occurs when a second exceedance within one calendar year is recorded at a monitoring site. If a violation of the CO NAAQS occurs, a public hearing process at the State and local level will begin. If the Air Quality Board agrees that the implementation of local measures will prevent further exceedances or violations, the Board may endorse or approve of the local measures without adopting State requirements. If, however, DAQ finds locally adopted contingency measures to be inadequate, DAQ will recommend to the Board that they adopt state-enforceable measures as deemed necessary to prevent additional exceedances or violations. Contingency measures will be adopted and fully implemented within one year of a CO NAAQS violation. Any state-enforceable measures will become part of the next revised maintenance plan submitted to EPA for approval.

(3) List of Potential Contingency Measures

The WFRC may choose one or more of the following contingency measures, or others that may be available at the time of a violation, to recommend to Ogden officials and the DAQ for consideration. WFRC will select contingency measures from the following list designed to bring the area back into compliance with the CO NAAQS quickly and that specifically meet the needs of Ogden. It is likely that no federal money will be available to fund the implementation of the selected contingency measure(s). Most, if not all, of the costs will be borne by local citizens and Ogden, local industries, and state government agencies.

- A return to annual inspections for all vehicles. In the current plan, vehicles six years old and newer are required to be inspected every other year.

- Improving the current I/M program in the Ogden area, such as increasing the maximum repair cost limits or totally eliminating emissions test waivers for vehicles that have failed the test.

- Mandatory Employer-Based Travel Reduction Programs as allowed by statute.

- Implementation of 2.7% oxygenated gasoline in Weber County from November 1 through the end of February, unless implementation would interfere with attainment of any other National Ambient Air Quality Standard.

- Other emission control measures appropriate for the area based on consideration of cost-effectiveness, CO emission reduction potential, economic and social considerations, or other factors that the State deems to be appropriate.

IX.C.8.g Subsequent Maintenance Plan Revisions

No maintenance plan revision will be needed after 2021, as that is the 20th year following EPA approval of the original maintenance plan. No further maintenance plan is needed after successful maintenance of the standard for 20 years. However, the State will update the Plan if conditions warrant.